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Technical Guidelines for Management of Equids

Scope: These guidelines are not applicable to equids used in sports, competitions, or leisure activities etc.

The “Technical Guidelines for Management of Equids” were developed and issued by the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF-J), based on the standards for animal welfare in the Terrestrial Animal Health Code of the World Organisation for Animal Health. This document is the English version of the guidelines translated by MAFF-J. While every effort has been made to ensure that the translation is as accurate as possible, the accuracy and completeness of the content is not entirely guaranteed. For accurate and up-to-date information, please refer to the original Japanese version.

Ministry of Agriculture, Forestry and Fisheries of Japan
Livestock Industry Bureau

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Section 1. Management method

1. Observation and recording

It is important to keep track of the health of equids to make sure that they are being reared comfortably. Signs of poor health in equids include changes in posture, changes in coat condition, eye discharge, nasal discharge, diarrhea, poor appetite, fatigue, rapid and irregular breathing, persistent coughing or panting, trembling, abnormal sweating, lameness, and abnormal behaviors.

It is important to keep daily records to ensure that the rearing environment is comfortable for the equids. The items to be recorded include the health status of the equids, the occurrence of diseases and accidents and their causes, feed rations or intake, adequate water supply, maximum and minimum temperatures, and humidity.

[Actions recommended for implementation]

Equids should be observed at intervals appropriate to the management practices and the risks to the health and welfare of equids, at least once a day. In particular, the frequency of observation should be increased to prevent the occurrence of sickness and injury when there are neonation foals, newly weaned foals pre- and post-foaling equids, or equids that have just undergone surgical procedures, or immediately after changes in the rearing environment or during hot or cold seasons.

When observing equids, their health status should be assessed by observing factors including their body condition, feeding status, presence of injury or lameness, and resting behaviors. The absence of any signs indicating a deterioration in animal welfare should be confirmed by referring to the animal welfare measurables shown in Section 6, and it should also be checked that feed and water are being administered appropriately, ventilation is adequate, lighting is adequate, and bedding is clean.

If equids show signs of health deterioration, clinical examination and lesion observation should be utilized to take appropriate action immediately. Diseased or injured equids should be given appropriate treatment as soon as possible by the manager (e.g., owner) or handler (person actually involved in the management of the equids). If the manager or handler is unable to provide appropriate treatment, veterinary treatment should be provided. When equids die, they should be promptly handled and reported, and the cause should be ascertained.

Daily records should be kept of the health status of equids, the occurrence of diseases and accidents and their causes, individual reproductive records, feed rations or intake, adequate water supply, maximum and minimum temperatures, and humidity. In particular, for the occurrence of diseases and accidents, and the circumstances when they occur, the mortality rates, morbidity rates, and culling rates, along with the causes of any increase or decrease and the details of treatment should be checked and recorded regularly; i.e., daily, monthly, annually, or with reference to key management activities within the production cycle., and periodically recorded. Items to be recorded should be added in accordance with the situation requires, for example, when a behavior that may be causing animal welfare problems is observed (refer to Section 6.1).

When the herd is reorganized by introducing equids from outside or from different herds, special care should be taken for the observation and recording as this can be very stressful for the equids.

[Actions recommended for future implementation]

None

2. Handling of equids

Equids are timid animals that are sensitive to changes in their surrounding environment; therefore, it is important for managers and handlers to treat equids carefully and build good relationships with them during daily management, which will lead to improved animal welfare.

[Actions recommended for implementation]

Human-animal interaction should be positive in order not to compromise the welfare of the equids.

When working in the stables or approaching equids, managers and handlers should avoid sudden actions that may cause unnecessary stress, avoid rough handling, and handle the equids as carefully as possible.

Behaviors such as equids refusing to move, attempting to kick people or facilities, or vocalizing should be noted as signs of a lack of good relations as well as temperament.

Equids continue to develop until over the age of five years, so consideration should be given, according to workload, as to when working life commence. In general, this should be three years of age or more but never less than two years of age.

Special consideration should be given to old animals, and sick or injured equids should not be worked. In addition, any animal that has been under treatment should not be returned to work until advised by the veterinarian.

Consideration should be given to the animal's overall condition, and other factors such as climate, and the type of work as well as workload, should be adjusted accordingly (e.g., work should be reduced in very hot weather). Breaks should be given at least every two hours and drinkable water should be provided during the breaks.

When transporting equids, the loading, transport, and unloading should be conducted appropriately according to the "Technical Guidelines for Transport of Farm Animals."

Working equids should be kept safe from predators and from road accidents. They should work a maximum of six hours per day and should be given at least one full day's rest in every seven-day period.

Exposure of equids to sudden movements or changes in visual contrast (sudden changes in brightness or color) should be minimized whenever possible.

When equids are handled with tools, handlers should be discouraged from using whips and harmful goads such as sticks that may cause unnecessary pain to the equids. Instead, humane training practices for equids should be promoted which focus on developing good driving practices.

It is important to note that some management practices, such as castration and hoof care, which are commonly performed to facilitate handling and improve human safety and animal welfare, are not based on evidence and are inherently bad for welfare. Evidence of firing, nasal slitting, lampas cutting, and harmful substances applied to wounds should be identified as indicators of poor animal welfare. Management

practices should be accomplished with the proper equipment and pain relief if appropriate. Painful husbandry procedures should be performed under the recommendation or supervision of a veterinarian.

Different natural behaviors and social interactions between horses, mules and donkeys should be taken into account.

For equids that have been retired from work, consideration should be given to end-of-life issues, including the possibility of using them for other purposes. In order to avoid the equid suffering a prolonged and painful death by abandonment, neglect or disease, or an acute, painful death such as being eaten by wild animals or hit by a road vehicle, slaughter or euthanasia should be considered as a last resort and when they are needed, the relevant domestic laws and regulations, and the “Technical Guidelines for On-Farm Euthanasia of Farm Animals" should be followed.

[Actions recommended for future implementation]

It is desirable for working equids to be given two full days’ rest in every seven-day period.

3. Harnessing

In these Guidelines, “harness” refers to all the components including the harness, saddle, bridles, and bits that are used to control a working equid, act as a braking system when pulling a cart, secure the load, and transmit power to carts and farm equipment.

A properly designed, well-fitted and comfortable harness allows the working equid to pull the equipment to the best of its ability, efficiently and without risk of pain or injuries.

[Actions recommended for implementation]

Managers and handlers should have good knowledge of the psychology and nature of equids, as well as to ensure effective harnessing and good driving and riding practices.

Harness should not have sharp edges which could cause injury; should be maintained well so that it does not cause wounds or chafing caused by excess movement; should be smoothly shaped or padded so that loads imposed on the equids’ bodies are spread over a large area; and should not impede the animal’s movement or normal breathing or restrict blood supply. Equids should be appropriately groomed before harnessing and checked after work for signs of rubbing and hair loss, and the source of any problems should be removed through maintenance and padding where required.

Bits should be of a shape that is suitable for the work and does not cause injury to the equid (such as a straight bar snaffle), and should always be smooth, appropriately sized for the equid, and kept clean. Inappropriate materials such as thin cord or wire should never be used as bits or to repair bits.

Harness injury should be prevented by using properly fitted and adjusted harnesses which is checked daily for damage and repaired promptly as necessary.

Carts should be maintained to ensure accurate balancing and appropriate tire pressure. For draught equids, the use of swingletrees is recommended so as to balance

the pull and thus as a result reduce the risk of pain from the harness.

[Actions recommended for future implementation]

None

4. Hoof management

Hooves are an important part of an equid's body, providing the foundation that supports the body. Deformation or diseases affecting the hooves will cause great stress and can lead to various illnesses; therefore, it is necessary to maintain the hooves in a healthy condition.

[Actions recommended for implementation]

To maintain normal hoof function and to prevent hoof disease, the hooves should be trimmed routinely. In addition to regular hoof trimming, given that the condition of hooves can change depending on the condition of the flooring and nutritional management, managers and handlers should acquire the proper knowledge and basic skills, observe the hooves frequently on a daily basis, and consultation with veterinarians and hoof trimmers in order to manage hooves.

If equids are fitted with horseshoes to protect their hooves, hoof trimming should be carried out regularly to keep them in proper shape, and shoeing should be performed appropriately.

[Actions recommended for future implementation]

None

5. Foaling

While it is most important that foaling takes place without any problems, there may be cases that require the assistance of managers or handlers due to dystocia, premature births, stillbirths, or placental retention (afterbirth retention), which can be very stressful for the mare.

Special consideration should be given to the facilities in the foaling area. The environment should be suitable to ensure good animal welfare for the foaling mare and the newborn foal.

[Actions recommended for implementation]

To prevent miscarriages in late pregnancy and allow the foal sufficient suckling access and interacting time with its mother, special consideration should be given to mares three months before and after foaling.

The foaling areas should be kept clean and well maintained by paying special attention to provide the equids with a clean and comfortable environment (including bedding, foaling pen, appropriate temperature, and hygiene). During foaling, the floor surface may become slippery due to amniotic fluid, posing the risk of bone fractures and sprains; therefore, the floor (or the ground if outside the barn) should be flat and dry to provide a foaling area considering the burden on the mare during foaling.

In addition, lighting in preparation for nighttime foaling and new bedding for insulation and anti-slip purposes should be provided. New bedding needs to be provided for each foaling.

Attention should be paid to the foaling signs of mares, such as the extent of udder fullness and milk leakage. After the onset of foaling signs, the equids should be monitored, and if necessary, assistance should be provided under the guidance from veterinarians or other qualified personnel.

Foaling assistance should be provided only to assist in cases of dystocia and not for the purpose of shortening the delivery time, and should not cause excessive pain or distress.

After delivery, managers or handlers should check if the placenta has been passed and pay attention for fever or other symptoms.

Newborn foals are susceptible to hypothermia. The temperature and ventilation of the birthing area should be adjusted to suit the needs of the newborn foal. Soft, dry bedding and supplemental heat can help prevent cold stress. The managers or handlers should pay attention to the defecation and suckling condition of foals.

[Actions recommended for future implementation]

None

6. Mare-foal separation and weaning

For equids, weaning is stressful for both the mare and the foal as it is accompanied by separation. It is necessary to observe both the mare and the foal carefully for a few days after weaning. In particular, with regard to foals, various stresses such as the loss of contact with the mother and changes in feed can cause a decrease in appetite and stalled growth, therefore care should be taken to avoid sudden changes in the content of their feed and to consider ways to minimize the impact of weaning as far as possible, such as by raising them in herds.

[Actions recommended for implementation]

Managers and handlers should perform weaning in a planned manner with a thorough understanding of the physiological characteristics of mother equids and foals, so as to avoid causing excessive stress.

Foals should be weaned after they have become able to independently consume feed that meets their nutritional requirements. Weaning should be carried out by persons who have mastered the necessary techniques, and should not be carried out at the same time as other stressful procedures such as surgical procedures or prolonged transportation.

Managers and handlers should observe the condition of the udder to prevent mastitis in the mare after weaning.

During the post-weaning period, foals of similar sizes should be herded together to allow them to develop sociality within the herd.

[Actions recommended for future implementation]

It is said that the younger the age at which the foal is weaned, the greater the stress it places on the foal; therefore, it is preferable to perform weaning at around six months of age.

7. Castration

Castration is performed to make stallions more docile and easier to manage, and also to make it possible to rear them in herds that include mares.

[Actions recommended for implementation]

If it is necessary to castrate, managers and handlers should seek guidance from veterinarians as to the optimum method and timing for their type of equids and production system, consider factors such as avoiding overlap with the weaning period to prevent stress and minimize the risk of infections in equids, and perform the castration at a young age. When performing castration, managers and handlers should seek guidance from a veterinarian on the availability and advisability of anesthesia and analgesia, and if deemed necessary, should be done under the administration of anesthesia and analgesia by a veterinarian.

Operators should be trained and competent in the procedure used, and be able to recognize the signs of complications. After castration, equids should be observed carefully. If there are any signs of suppuration or other symptoms, care or treatment should be provided promptly, and the procedure of castration should be re-examined and revised as necessary.

[Actions recommended for future implementation]

None

8. Identification

Identification is an important means for management, such as understanding the health conditions of individual or herd of equids.

Equids are often identified by their original characteristics such as coat color, white spots, and whorls, but branding is also performed if necessary. In addition, microchips may be used to prevent the misidentification of equids.

[Actions recommended for implementation]

Freezing branding and hot iron branding should not be performed if alternative identification methods are available. When branding is performed, the operator should be trained and competent in the procedures used, and be able to recognize the signs of complications.

[Actions recommended for future implementation]

None

9. Control of diseases and accidents

The prevention of disease and injury through daily management is of utmost importance.

Dental abnormalities can have a significant impact on the health of equid, such as causing loss of appetite and colic due to indigestion.

Managers and handlers need to acquire knowledge to identify and appropriately address non-ambulatory equids and equids affected by chronic illness and injuries.

[Actions recommended for implementation]

The health management of equids should be conducted to ensure optimal physical and behavioral health and animal welfare. Effective programs should be developed appropriately in consultation with a veterinarian and put in place for the prevention and treatment of disease and health conditions. The program, including production information (e.g., number of heads and number of offspring), morbidity rates, mortality rates, culling rates, and medical treatment, should be regularly updated by managers or handlers. An appropriate program should also be in place for the monitoring, control and treatment of parasites.

Managers and handlers should have experience in recognizing and dealing with non-ambulatory equids and equids affected by chronic illness and injuries and should consult a veterinarian as appropriate.

If they suspect the presence of a disease or are not able to correct the causes of disease, ill-health, distress, or stress, they should seek advice from veterinarians or other qualified advisors.

As dental abnormalities can have a significant impact on the health of equid, they should be observed daily while eating and if abnormalities are observed, such as spilling a lot of feed, appropriate measures should be taken in consultation with a veterinarian as necessary.

Vaccinations and other treatments administered to equids should be undertaken by people skilled in the procedures and on the basis of veterinary advice in accordance with the “Veterinarian Act (Act No. 186 of 1949)” and other relevant laws and regulations, and in consideration for the welfare of equids.

Equids identified or suspected as sick or injured should be separated as carefully as possible and given appropriate treatment promptly. In the case special isolation is required, all requirements of the equids should be taken into consideration, such as the provision of additional bedding or alternative flooring.

Non-ambulatory equids should not be transported or moved unless absolutely necessary for treatment or diagnosis. Such movements should be done carefully using methods that avoid dragging or excessive lifting that may exacerbate the pain or injury. Non-ambulatory equids should have access to feed and water at all times.

For sick or injured equid, a prompt diagnosis should be made by a veterinarian to determine whether the animal should receive additional care, emergency shipment, or on-farm euthanasia.

Based on the veterinarian's diagnosis, if the prognosis is poor with little chance of recovery after treatment, the decision of emergency shipment or on-farm euthanasia should be undertaken by a competent person. On-farm euthanasia, except for cases

where culling is carried out in accordance with the “Act on the Prevention of Infectious Diseases in Livestock (Act No. 166 of 1951),” should be conducted as soon as possible, following documented procedures and utilizing appropriate equipment, with reference to the "Technical Guidelines for On-Farm Euthanasia of Farm Animals."

Records of diseases and accidents should be kept, and if the frequency of occurrence is high, consultation with a veterinarian or relevant experts should be sought for appropriate action, as the presence of disease may be suspected, or the cause of disease, pain, distress, or suffering may not have been alleviated.

[Actions recommended for future implementation]

None

10. Cleaning and disinfection of stables

Ensuring a comfortable environment for equids is important for maintaining good hygiene and minimizing the risk of disease and injury. Furthermore, the accumulation of manure can cause foul odors and pests, provide a breeding ground for pathogens, and cause accidents such as slips and falls, which can lead to stress in equids.

[Actions recommended for implementation]

Flooring, bedding, resting surfaces, and outdoor yards should be cleaned as conditions warrant, to ensure good hygiene and minimize risk of diseases and injuries.

Areas in contact with equids, including facilities and equipment, should be cleaned and disinfected to keep the facilities and equipment clean.

To ensure a comfortable environment for equids, the floor surface should be kept dry by proper removal of manure and addition or replacement of the bedding.

If the stables are to become vacated for a long time, litter should be removed and the stables should be thoroughly cleaned and disinfected.

[Actions recommended for future implementation]

None

11. Biosecurity measures on the farm

In the event of the entry of highly infectious pathogens into a farm, there is a high risk that the disease will spread simultaneously throughout the entire herd, posing a significant problem for animal welfare.

In order to prevent the outbreak of infectious diseases and to maintain the health of equids, it is necessary to implement thorough management to prevent the entry of pathogens into the farm. In addition, hematophagous insects such as horseflies, stable flies, and black flies as well as ectoparasites such as ticks and lice, contribute to the transmission of various pathogens, and adversely affect equids through bloodsucking. Pest animals such as rats also play a role in transmitting various pathogens and degrade the rearing environment by causing contamination of feed and damage to facilities and equipment (e.g., electrical wiring).

[Actions recommended for implementation]

In addition to complying with the “Biosecurity Standards” prescribed in the “Act on the Prevention of Infectious Diseases in Livestock,” managers and handlers should design, implement, and periodically review “Biosecurity plans” and acquire the necessary knowledge for the daily prevention of infectious disease outbreaks. In the case of any abnormalities observed in equids or other necessary situations, managers and handlers should consult with veterinarians. When specific symptoms outlined in the “Act on the Prevention of Infectious Diseases in Livestock” are confirmed, they should notify the Livestock Hygiene Service Center immediately.

When vehicles enter or leave a farm, or when managers or others enter or leave the stables, disinfection should be carried out appropriately. The invasion and occurrence of pest animals, hematophagous insects, and ectoparasites that transmit pathogens should be prevented, and prompt extermination measures should be taken when they emerge.

[Actions recommended for future implementation]

None

12. Promoting understanding of animal welfare

It is necessary to understand that ensuring good animal welfare involves management practices such as designing management systems, managing rearing environments, responsible rearing, and providing appropriate care and that serious problems may arise if these factors are compromised.

Good management of equids plays a crucial role in ensuring good animal welfare. It is also necessary to constantly recognize that the acquisition of correct knowledge, skills, and an aptitude for animal welfare by managers and handlers will contribute to the reduction of the number of equids that are culled due to problems, including hoof diseases, digestive and respiratory diseases, reproductive disorders, and lead to the long-term, healthy rearing of equids.

[Actions recommended for implementation]

Managers and handlers should be competent with relevant experience or training to equip them with the necessary practical skills and knowledge of equid behavior, handling, health, biosecurity, physiological needs, and welfare (early specific signs of disease, or distress, such as coughing, ocular discharge, changes in locomotory behavior, and non-specific signs such as reduced feed and water intake, changes in weight and body condition, changes in behavior and abnormal physical appearance). In particular, managers and handlers should acquire the knowledge and skills to identify and appropriately manage non-ambulatory equids, recently foaled equids, and equids suspected of being affected by chronic illness or injured, as well as the knowledge to evaluate the suitability of transportation and the appropriate body condition (see Appendix I: “Body Condition Score (BCS) for Equids”).

There should be sufficient number of handlers to ensure the health and welfare of the equids.

[Actions recommended for future implementation]

None

Section 2. Nutrition

1. Nutritional and water requirements

Equids are herbivores, so in order to maintain a normal digestive environment and to keep them healthy, it is necessary to feed them a sufficient amount of roughage in small amounts frequently, as well as to pay close attention to its quality. In addition to roughage, concentrated feed is sometimes required depending on the purpose of rearing the equid and its environment, however, feeding a large amount of concentrated feed at once can cause disorders in equids such as colic and laminitis.

The body condition score of equids is a good indicator of nutritional control and the health status.

[Actions recommended for implementation]

Equids should be provided with access to an appropriate quantity and quality of balanced nutrition and water that meets their physiological and working needs, and should not allow body condition to fall outside an acceptable range.

Inadequate diets and feeding systems may contribute to diseases, stress, discomfort or to abnormal behavior in equids and should be avoided. Managers and handlers should be aware of the equids' nutritional needs and understand the impact that feed composition and sudden feed changes can have on indigestion, etc.

Water requirements are influenced by factors such as temperature, body weight, and feed ingredients. Insufficient water intake can result in various diseases; therefore, fresh, potable, and sufficient water should be provided at all times.

When equids are maintained outdoors, the handler should ensure that the period of reduced nutrition is not prolonged, and that extra food and water supply are provided if welfare would otherwise be compromised.

The "Japanese Feeding Standards for Horses (edited by the Equine Research Institute of the Japan Racing Association)" and other sources should be referred to for information on the types and quantities of nutrients required. Handlers should consult an expert for advice on ration formulation and feeding programs when needed. As fluctuations in feed ingredient values are particularly large in roughage, analysis of self-supplied feed should be conducted by feed analysis centers or similar facilities.

Equids should be fed frequently with roughage in order to mimic their natural feeding pattern as closely as possible, while paying attention to the quality and quantity of roughage to aid digestion.

[Actions recommended for future implementation]

None

2. Ensuring the quality of feed and water

When feed and water are stored in feeders and waterers for a long time, problems such as contamination caused by the growth of mold and bacteria will occur. Additionally, problems such as poisoning from mold toxins that develop in spoiled feed may occur, and it is necessary to pay attention to the storage conditions of feed.

Contamination of feed and water by the excrement of wild animals such as rats and

wild birds can lead to diseases.

[Actions recommended for implementation]

Feeders and waterers should be easy to clean and properly maintained through regular inspections and cleaning in consideration of the frequency recommended by the equipment manufacturer. Concerning water, attention should be paid to high temperatures in summer and freezing in winter.

Feedstuffs and feed ingredients should be of satisfactory quality to meet nutritional needs, be managed to minimize contamination and degradation, and be tested for the presence of substances that would impact on the health of equids.

Measures to prevent the entry of wild animals should be taken to avoid contamination of feed and water with excrement from rats, wild birds and other animals that could cause diseases in equids.

Equids should be fed frequently with a predominantly fiber-based diet: grass, hay or a suitable and safe alternative in order to mimic their natural feeding pattern as closely as possible.

When equids are grazed, attention should be given to contaminated puddles, poisonous plants such as bracken, and other potential hazards to equids. Cut green forage should be provided when grazing is not possible. Dry long fiber forage should be provided when adequate green forage is not available.

[Actions recommended for future implementation]

None

3. Feeding and water supply methods

When installing feeders and waterers, it is necessary to ensure that all equids have adequate access to feed, water, and nutrition without any problems, and to keep in mind that requirements of feed and water vary according to age, weight, and other factors. Constant feeding of roughage is desirable.

[Actions recommended for implementation]

In all management systems, feeding and watering facilities should ensure that all equids have adequate access to feed, water, and nutrition without problems.

Managers or handlers should design feeding and water supply systems to prevent excessive fighting among equids, ensure sufficient space according to the systems, and take appropriate measures.

Feeding times and frequency should ideally be consistent every day. When new feed is introduced, it should be introduced in a planned and gradual manner.

When introducing equids into a new stable, it should be confirmed that they are able to consume feed and water.

Roughage should be provided constantly as far as possible. If this is not possible, it is desirable to increase the length of the feeding time, such as increasing the frequency of feeds.

Owners and handlers should allow working equids to forage whenever possible and

allow for an adequate number of working breaks to allow the animals to eat.

Equids should have access to water at all times.

[Actions recommended for future implementation]

None

4. Colostrum and feed for foals

Newborn foals immediately face a rapid change in their survival environment from the mother's body to the outside world, and the foal itself has weak resistance; therefore, proper management is necessary to help the foal adapt to the new environment.

Colostrum is the first milk secreted after parturition, playing a crucial role in maintaining the foal health, especially containing immunoglobulins that are responsible for transmitting immunity from the mother to the foal. As the absorption capacity of immunoglobulins in foals rapidly declines with time after birth, sufficient colostrum should be provided as soon as possible after birth. If the foal is unable to suckle the colostrum by itself, it is necessary to take measures such as squeezing out the colostrum and giving it to the foal.

[Actions recommended for implementation]

To provide passive immunity and adapt foals to their new environment, handlers should ensure that foals receive sufficient colostrum as soon as possible after birth, and colostrum should be free from the risk of infectious diseases that could be transmitted through colostrum.

To encourage normal growth after weaning, high-quality solid feed and hay should be fed from about two to four weeks after birth.

[Actions recommended for future implementation]

None

Section 3. Stables

When newly building or renovating a stable, the impact of climate and geographical factors should be evaluated and the stable should be designed based on expert knowledge on the health and welfare of equids, while taking into consideration the five freedoms. In order to mitigate the negative effects of these factors, efforts should be made to adapt the breed of equids to the location of the farm or to consider alternative locations. In addition, consideration should be given to the following: (1) ensuring the environment in the stable is comfortable for equids and fresh air can be supplied to the entire stable at all times; (2) prevention of the invasion of pathogens and pest animals such as wild animals, rats, and flies; (3) avoiding significant changes in temperature and humidity in the stable due to fluctuations in the weather conditions, such as heat and cold, which may adversely affect the health of equids; (4) designing the structure to facilitate daily management and observation of the equids, equipped with necessary management facilities; and (5) providing a structure that enables appropriate disposal of manure.

It is necessary to strive for appropriate management, including repairs to prevent equids from being injured by damaged parts of the stable and equipment.

[Actions recommended for implementation]

When building a new farm, the impact of climate and geographical factors should be evaluated, and efforts should be made to mitigate these impacts by matching the breed of equids to the location of the farm or considering alternative locations.

All facilities for equids should be designed, constructed, maintained and managed in a way that minimizes adverse effects on equine health and animal welfare caused by significant changes in temperature and humidity in the stables due to fluctuations in weather, such as extreme heat or cold.

Stables should be designed and managed in a way that prevents the invasion and emergence of wild animals, rats, flies, and other pests.

Stables should be designed with a structure that facilitates daily management and observation of the equids, be equipped with the necessary management facilities, and have a structure that enables the appropriate disposal of manure.

Attention should be paid to prevent equids from being injured by damaged parts of the stables.

[Actions recommended for future implementation]

None

1. Management methods

There are various options for equine rearing systems, including stall housing, pastured, and combinations of these methods.

To provide a comfortable environment for equids, it is important for managers and handlers to have good management skills, as well as adequate understanding of these management methods.

Allowing equids to graze or exercise in paddocks and giving them opportunities to

interact with other equids helps to mitigate their stress and to keep them healthy. Therefore, if the geographical conditions and environment are suitable, it would be desirable to provide and actively utilize pastures and paddocks.

(1) Stall housing system

Stall housing system is a method in which equids are kept and fed in stables and paddocks and includes single-stall housing or group housing systems.

[Actions recommended for implementation]

When stocking density is high or when a new herd is organized, fighting or competition among equids is likely to occur; therefore, the equids should be watched carefully for injuries.

Equids should not be kept confined indoors for long periods.

Equids should not be tethered or hobbled continuously. When temporary tethering is necessary, equids should be able to lie down. In situations where temporary hobbling is necessary, the handlers should ensure sufficient distance between the two hobbled legs to allow the equid to stand naturally and move without risk of injury. Equipment used to hobble should be designed for that purpose. The parts of the hobbles which are in contact with the skin should not be made from material that causes pain or injury.

Mares in season should not be tethered near stallions. Mares about to foal or with a foal should not be tethered.

If tethered outdoors, equids should be able to turn around and walk. The tethering site should be free from obstructions that may entangle the tether, such as ropes. Adequate water and feed should be provided; if necessary, equids should be moved to areas providing shade or shelter.

If equids are housed alongside horned cattle or other animals, care should be taken to protect them from injury.

Enclosures or gates used should be structurally sound and free of sharp edges, protrusions and other features that could cause injury to the equids, and installed and maintained correctly to prevent problems with animal welfare.

[Actions recommended for future implementation]

None

(2) Pasture system

The pasture system is a method in which equids are released onto grassland, etc. and allowed to graze directly.

[Actions recommended for implementation]

If equids are pastured alongside horned cattle or other animals, appropriate measures should be taken to protect them from injury. Enclosures or gates used should be structurally sound and free of sharp edges, protrusions and other features that could cause injury to the equids; they should be installed and maintained correctly to prevent problems with animal welfare.

To maintain hoof health, the pasturing site should not be muddy.

Equids should be rotated between fields to ensure good hygiene and minimize the risk of disease and injuries.

[Actions recommended for future implementation]

None

2. Structures and facilities

The structures of the stables and facilities, including the stalls, should ensure that the equids will not be damaged by protrusions, and should be easily cleaned and disinfected.

The structure and materials of the beds need to be comfortable and safe for the equids, and not cause injuries by slips and falls. Additionally, when using bedding, clean and dry materials should be used. Particular attention should be paid during the nursing period, as equids are susceptible to digestive diseases, such as diarrhea, and respiratory diseases such as pneumonia.

[Actions recommended for implementation]

Slopes of the stables should be structured to prevent water from pooling inside the stables.

Alleys and gates should be designed and operated to allow free movement of equids. Floors should be designed and managed to minimize slipping and falling and reduce the risk of limb and hood injuries.

Sharp edges and protrusions should be eliminated from the inside of stables to prevent damage to equids, and any uneven surfaces created by equids' foot pawing should be regularly repaired and properly maintained.

There should be a separate area where individual animals can be examined closely, and which has restraining facilities. Equipment for handling and restraining equids should be installed and used in a way that minimizes injury, pain and distress.

Mechanical and electrical devices used in the facilities should be safe for equids. Adjustable equipment should be adjusted, as appropriate, to the size of the equids to be handled, and installed and used in a way that minimizes the risk of injury, pain or distress. In addition, hydraulic or pneumatic equipment should have pressure limiting devices to prevent injuries. The manufacturer of such equipment and devices should consider animal welfare at the time of design and preparation of the instruction manual.

Bedding should be provided to all equids housed in stables. Bedding such as straw, sand, sawdust, or other bedding used should be suitable (e.g. hygienic, non-toxic) and added, replaced, and maintained appropriately to provide equids with a clean, dry and comfortable place on which to lie.

Dipping baths and spray races used for ectoparasite control should be designed and operated to minimize the risk of crowding and to prevent injury.

[Actions recommended for future implementation]

None

3. Space allowance

Since the required rearing space varies depending on factors including the breed and weight of the equids, stable structure, and the rearing system, it is difficult to uniformly mention the appropriate level. What is important is that managers or handlers observe the equids carefully and determine whether the rearing space is appropriate. If the space is overcrowded, equids will experience stress that may lead to illness or poor growth.

[Actions recommended for implementation]

All equids should be offered adequate space for comfort and socialization and sufficient space should be provided both in the resting and working environments. If abnormal behavior is seen, corrective measures should be taken, such as increasing space allowance, or reallocating space to enable the animals to lie down.

Shelter should provide protection against adverse weather conditions, predators, and injury, as well as ventilation and the ability to rest comfortably. All equids should be provided with a resting space that is dry, clean, and large enough for the equid to lie down and turn around easily at the same time. The rearing space should also take into account different areas for lying down, standing, and feeding, and managed in a way that avoids the adverse effects of crowding on normal behavior and lying down. In particular, mares with nursing foals and pregnant mares should be provided with sufficient space.

[Actions recommended for future implementation]

None

Section 4. Environment of stables

1. Thermal environment

The comfortable temperature range for equids depends on the stage of maturity, breed, and other factors.

The optimal temperature range for equids is approximately 7 to 23°C, but equids are perspiratory animals and are said to be able to withstand heat to a certain extent. The apparent temperature of equids is affected not only by temperature, but also by humidity, solar radiation, wind, and ventilation methods.

When it is too hot for the equids, they may experience increased respiration rate, decreased appetite, and abnormal sweating.

To protect equids from extremely cold weather, extra bedding, blankets, or shelter should be provided.

[Actions recommended for implementation]

Managers and handlers should be aware of the risk that heat stress poses to equids and observe equids closely and take actions to maintain their comfort, such as by taking measures to prevent overheating in stables when temperatures are abnormally high.

If conditions are expected to induce heat stress, and increased respiratory rate, decreased appetite and abnormal sweating are observed, heat control measures, such as provision of appropriate shade or shelter along with sufficient drinking water, providing ventilation with large fans, spraying water on the roof, installing misting systems, and feeding during cooler night. In addition to making efforts to reduce apparent temperature of the equids as far as possible, owners and handlers should avoid work at extreme high temperatures.

A contingency plan and crisis management manual outlined in Section 5.3 should include that when the risk of heat stress reaches high levels, handlers should give priority to access to additional water, as well as provision of shade, fans, and other cooling systems as appropriate for the local conditions, and these should be implemented appropriately. In addition, the contingency plan and crisis management manual should include that during extremely cold weather conditions, handlers provide equids with shelter, and appropriate feed and water.

During seasons of severe cold, handlers should take insulating measures such as adding bedding and preventing drafts. Protection from extreme cold weather conditions should be provided when these are likely to create a serious risk to the welfare of the equids, particularly of neonates, young equids, and others that are physiologically compromised. However, care should be taken that, in an attempt to protect against the cold, ventilation and air quality are not compromised.

[Actions recommended for future implementation]

None

2. Ventilation

Maintaining good air quality in the stables and providing adequate ventilation are important for the health and welfare of equids. These methods are effective in reducing

discomfort and the risk of disease among equids.

The air composition is influenced by stocking density, the size of equids, flooring, bedding, manure management, stable design, and ventilation systems.

In order to provide a constant supply of fresh air and keep the comfortable environment for equids, adequate ventilation should be provided to remove ammonia, hydrogen sulfide, carbon dioxide, dust and moisture generated in the stables to the outdoors. It should also be noted that ventilation during hot weather has the effect of discharging heat in the stables and helping the body heat dissipate by using the wind from ventilation fans, and it is not solely intended to blow air directly to the bodies of the equids.

In particular, inadequate ventilation leading to the retention of ammonia and other substances in the stables poses risks not only to the equids, but also has an adverse impact on human health by causing damage to the respiratory organs and other organs. Since ammonia is generated from the manure of equids, the amount and concentration of ammonia varies greatly depending on the ventilation system and the manure treatment conditions.

[Actions recommended for implementation]

The ventilation system should be designed to provide a constant supply of fresh air throughout the stables.

Since ammonia has an adverse impact on equine and human health, the dust level should be kept to a minimum through constant supply of fresh air, and thorough ventilation and excrement removal.

[Actions recommended for future implementation]

None

3. Lighting

The stables should be provided with appropriate lighting equipment, as necessary, to ensure that the light is bright enough for equids to perform natural behaviors such as feed and water intake, and bright enough for managers and handlers to observe and manage the condition of equids effectively.

[Actions recommended for implementation]

Appropriate lighting equipment should be installed to enable equids to perform normal behaviors such as intake of feed and water, and allow managers or handlers to carry out their daily work without hindrance.

Stabled equids that do not have sufficient access to natural light should be provided with supplementary lighting which follows natural periodicity sufficient for their health and welfare, to facilitate natural behavioral patterns and to allow adequate inspection of the equids.

The lighting should not cause discomfort to the equids and should include weak night lighting for stabled equids. Adequate lighting should also be provided in and around the entrances and exits of the holding facility.

[Actions recommended for future implementation]

None

4. Noise

Equids are animals that are sensitive to noise, and excessive noise may surprise equids, reduce feeding and lead to accidents. It may also induce anxiety or fear, hindering normal resting or sleeping and resulting in stress.

[Actions recommended for implementation]

Ventilation fans or other indoor or outdoor equipment should be constructed, placed, operated, and maintained in such a way that they cause the least possible amount of noise.

Exposure of equids to incessant noise and sudden noises should be minimized whenever possible.

[Actions recommended for future implementation]

None

Section 5. Confirmation of the situation related to animal welfare

1. Confirmation of animal welfare status

It is important to confirm and record the current management of equids on the farm in order to address the concept of animal welfare appropriately.

2. Inspection and management of equipment

If automated equipment, such as automatic water dispensers, is installed, its failure could negatively affect the health of equids and the rearing environment, and it should be appropriately maintained and managed.

[Actions recommended for implementation]

All facilities should be constructed, maintained, and managed to minimize the risk to the welfare of equids. The equipment should also be inspected at least once a day to ensure proper operation, considering the frequency recommended by the equipment manufacturers. If a fault is found, it should be repaired promptly.

[Actions recommended for future implementation]

None

3. Emergency response

Outages of the electricity, water, and feed supply systems may compromise animal welfare. Therefore, to respond to emergencies such as fires on the farm, flooding, power outages, water outage due to natural disasters, and feed supply disruptions due to road conditions, and to prevent adverse effects on the health of equids and their rearing environment, each farm should take measures such as obtaining contact information of main service providers, considering stockpile of feed and fuel as well as water intake methods, and installing their own power generators and alternative systems for automated equipment, such as automatic water dispensers.

[Actions recommended for implementation]

To address the failure of electricity, water, and feed supply systems, as well as to minimize and mitigate the effects of natural disasters (e.g., earthquakes, fires, droughts, floods, blizzards, typhoons, and high temperature stress), managers and handlers should have contingency plans or crisis management manuals that cover the failure of these systems, be familiar with them, and should share them with all relevant parties, rather than to deal with the consequences of the disaster. The contingency plan or the crisis management manual should cover the procedures for euthanasia of sick or injured equids and the management of the farm in the case of an emergency outbreak of disease, consistent with farm animal hygiene measures of national and prefectural Veterinary Services.

In case of feed shortage due to drought or other reasons, managers and handlers should take measures to minimize the reduction period of feed supply and to mitigate the risk of damage to the health and welfare of equids. Animal management decisions should be made as soon as possible and should include consideration of reducing the number of equids.

If supplementary feed is not available, steps should be taken to avoid starvation, including relocation, sale, or slaughter of the animals, or euthanasia.

Backup systems such as alarms and generators should be checked periodically, considering the frequency recommended by the equipment manufacturers.

If there is a risk of damage to equids or stables as a result of natural disasters, preventive measures should be taken in advance whenever possible. Among the advance measures, the evacuation plans should include feasible actions, such as moving equids to lower-risk areas on the farm site. In addition, measures to prevent the spread of damage should be implemented after the weather conditions have recovered.

[Actions recommended for future implementation]

None

Section 6. Criteria or measurables for the welfare of equids

The following animal-based criteria or measurables can be useful indicators of animal welfare.

[Actions recommended for implementation]

Criteria or measurables of the welfare of equids should take into account the design of management systems and management practices.

The use of these indicators and the appropriate thresholds should be adapted to the different situations where equids are managed.

1. Behavior

The presence or absence of certain equine behaviors could indicate an animal welfare problem, including fear, depression or pain. Behaviors differ between donkeys, horses and mules; and a good understanding of normal behavior of each species is required.

Some behaviors may not be uniquely indicative of one type of problem; they may be exhibited for a variety of causes. Depression, apathy, dullness and lethargy in equids that are normally active and alert are indicative of a welfare problem. Changes in eating or drinking patterns may indicate a welfare problem, especially a decreased feed intake. This might also be an indicator of dental problems, poor feed quality or even feed contamination.

(1) The following are examples of behaviors indicating discomfort or pain:

- head pressing, teeth grinding, grunting, food dropping, and inability to eat normally. Such behaviors may indicate disease or pain;
- depression, circling, foot pawing, flank watching, inability to stand up, and rolling. Such behaviors may indicate abdominal or other discomfort;
- disturbance of ground or bedding. Such behaviors may indicate disease, abdominal pain or malnutrition;
- weight shifting, foot pawing, reluctance to move or abnormal movement. Such behaviors may indicate leg, foot, spine or abdominal pain;
- head shaking or avoidance of head contact. Such behaviors may indicate head, ear or ocular discomfort;
- itching, rubbing, and self-inflicted abrasions. Such behaviors may indicate skin problems or parasites.
- restlessness, agitation and anxiety, rigid stance and reluctance to move, lowered head carriage, fixed stare and dilated nostrils, clenched jaw, aggression and reluctance to be handled, may indicate non-specific pain in horses. In donkeys, these behaviors are more subtle and may not be recognized;
- vocalization, rolling, kicking at abdomen, flank watching and stretching in horses, and dullness and depression in donkeys, may indicate abdominal pain;
- weight-shifting, limb guarding, abnormal weight distribution, pointing, hanging and

rotating limbs, and abnormal movement may indicate limb and foot pain in horses. These signs are more subtle in donkeys, although repeated episodes of lying down are reported more indicative;

- headshaking, abnormal bit behavior, altered eating, anorexia, and quidding may indicate head and dental pain.

(2) The following are examples of behaviors indicating fear or anxiety:

- unusual avoidance of humans, especially when managers and handlers or objects associated with their handling come close;
- a reluctance by the equids to engage in their use for traction or transport or even a cessation and aggressive behavior, especially when fitting equipment or loading is undertaken.

(3) The following are examples of behaviors indicating stress:

- oral stereotypies such as crib biting, aerophagia (“wind sucking”);
- locomotive stereotypies such as stable walking, weaving;
- abnormal vocalization, agitation or defecation.

2. Morbidity and injury rates

Morbidity rate, including incidence of disease, lameness, injuries, or post-procedual complications, as well as injury rates, may be direct or indirect indicators of the animal welfare status.

Understanding the aetiology of the disease or syndrome is important for detecting potential animal welfare problems. Scoring systems, such as those used to score lameness and body condition, provide additional information.

Both clinical examination and pathology may be utilized as an indicator of disease, injuries and other problems that may compromise animal welfare.

3. Mortality and culling rates

Mortality and culling rates, like morbidity and injury rates, may be direct or indirect indicators of the animal welfare status. Estimates of mortality and culling rates can be obtained by analyzing death, culling, and their temporal and spatial patterns of occurrence.

Mortality and culling rates, and their causes, should be recorded regularly, e.g., daily, monthly, annually, or with reference to key husbandry activities.

Necropsy is useful in establishing the cause of death.

4. Body condition and physical appearance

Poor or changing body condition or physical appearance may be an indicator of compromised animal welfare and health and scoring systems help to provide objectivity.

Observation of physical appearance often provides an indication of animal welfare and health. Attributes of physical appearance that may indicate compromised welfare include:

- feet or limb abnormalities;
- wounds or injuries;
- dehydration or signs of heat stress;
- abnormal discharges;
- presence of parasites;
- abnormal coat or hair loss;
- excessive soiling with feces, mud, or dirt;
- emaciation.

5. Handling responses

Poor human-animal interactions can lead to improper handling. This may include bad driving and inappropriate restraint methods, or the misuse of whips and sticks, and can result in fear and distress.

Indicators include:

- aversive or apathetic responses to fitting of equipment or loads;
- defensive responses from the equid to the managers or handlers such as threatening facial expressions, kicking, biting, avoiding human contact.

6. Complications due to management practices

Some management practices, such as castration and hoof care, are commonly performed in equids to facilitate handling and improve animal welfare and human safety.

Equids are shod for two main reasons; to prevent hoof wear and to improve performance. Many equids cope well without shoes and, if they are coping well, are best unshoed in most cases. However, poor hoof care and farriery predispose the equids to injury and infection, and can result in changes to the size, shape and function of the hoof. Untreated abnormalities of the foot can create long-term problems in other parts of the leg and body due to change in gait and weight bearing.

If management practices such as these are not performed properly, animal welfare may be compromised. Indicators of such problems include:

- post-procedure infection and swelling;
- post-procedure lameness;
- myiasis;
- behavior indicating pain or fear;
- mortality rates.

It is important to note that some practices are not based on evidence and are inherently bad for welfare. Evidence of firing, nasal slitting, lampas cutting and harmful substances applied to wounds should be identified as indicators of poor welfare.

7. Lameness

Traditionally, lameness has been defined as any alteration of the equid's gait. In addition, lameness can manifest in such ways as a change in attitude or performance. These abnormalities can be caused by pain in the neck, withers, shoulders, back, loin, hips, legs or feet. Identifying the source of the problem is essential for proper treatment. Lameness or gait abnormalities are the most common signs of equids seen by veterinarians. Various scoring systems are available to assess the degree of lameness.

Indicators of such problems include:

- hoof conformation abnormalities;
- unequal weight bearing;
- hoof and pastern axis and angles.

8. Fitness to work

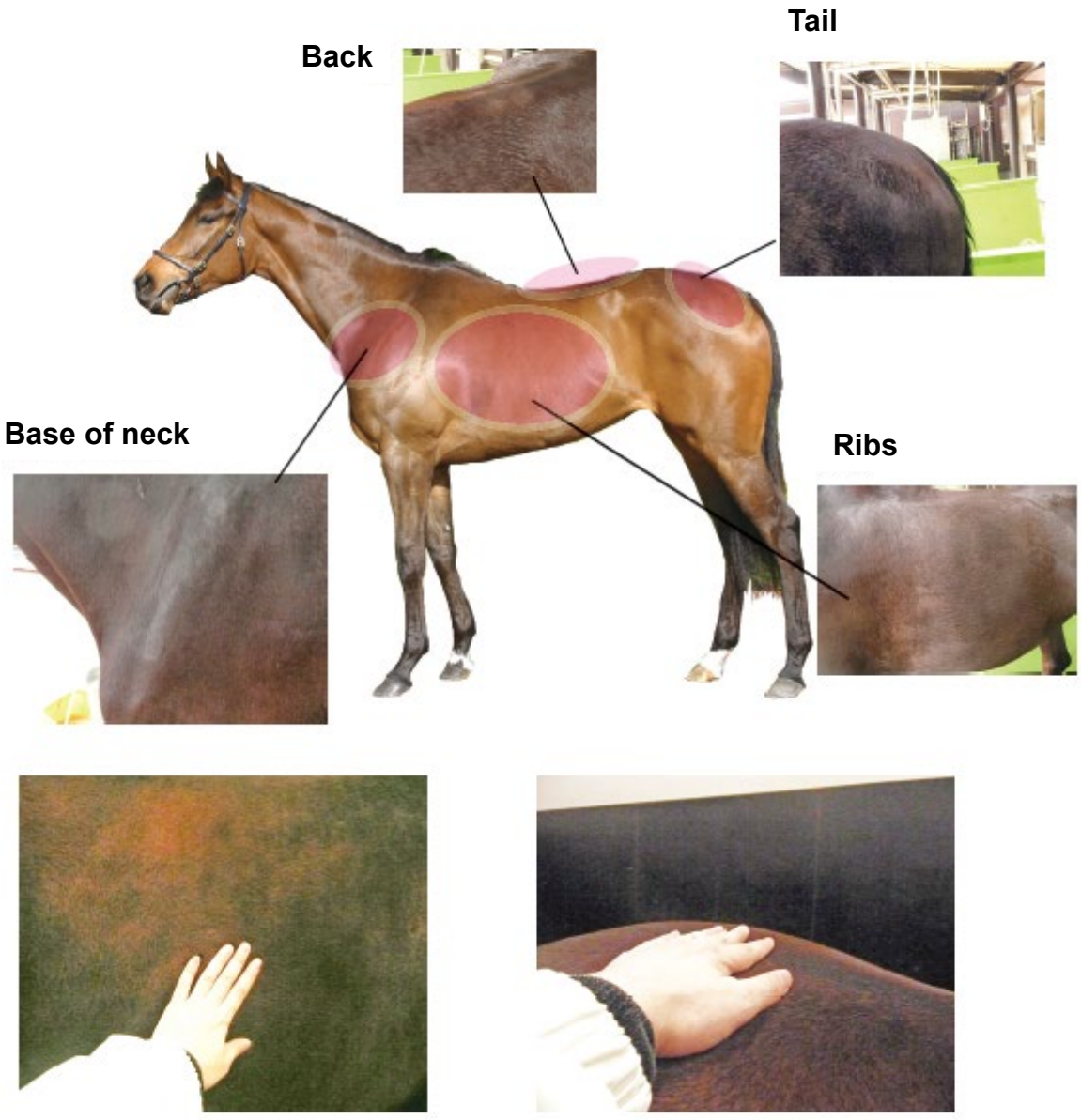
Fitness to work is the state or condition of being physically sound and healthy, especially as a result of exercise and proper nutrition, to perform work well. Various factors, such as the equid's age, breed or physiological state (e.g., pregnancy) may influence its fitness to work.

Indicators of an equid’s inability to carry out the work demanded of it include the presence of heat stress, lameness, poor body condition or weight loss, harness related wounds and aversive behavioral responses to, for example, harness and equipment fitting.

Appendix I

The monitoring of a weight gain of horse is necessary not only during the growing period, but also for mature horses to determine whether to increase or reduce the amount of feed given to them. Weighing scales are not always available, and weight alone is not sufficient for determining whether an equid's weight gain is acceptable, or whether it is overweight or underweight. Body Condition Score (BSC) is a method for visually and palpably assessing the amount of fat cover. This method scores the amount of fat in parts of the equid's body that are relatively prone to gaining fat. In particular, the degree to which the ribs rise and feel when touched, the roundness of the back, and the softness of the tail are easy markers to use in the scoring.

Body Condition Score (BCS) for Horses

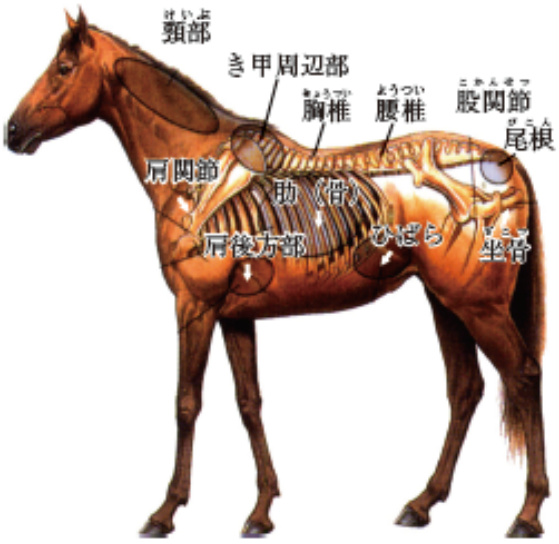


Scoring by palpation

Areas used to assess body condition

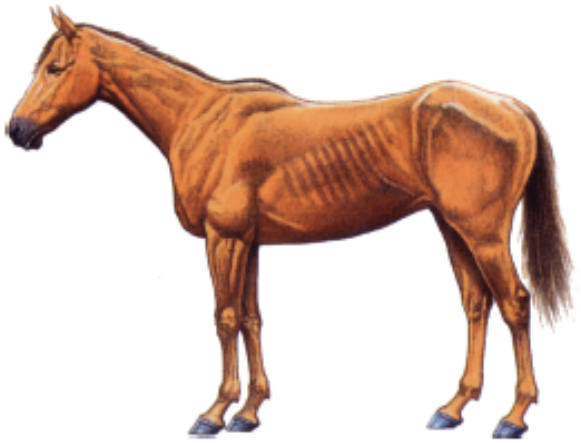
Score 1: Poor

The house is extremely emaciated; spinous processes (lumbar, thoracic), ribs, tuber coxae, and tuber ischii project prominently; bone structure of withers, shoulders, and neck are easily noticeable; no fatty tissue can be felt.



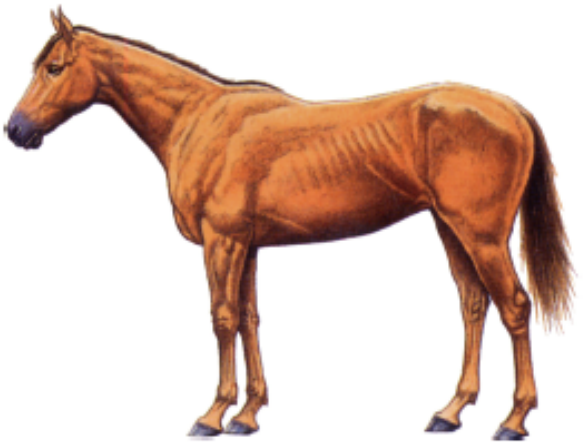
Score 2: Very thin

Emaciated; spinous processes (lumbar, thoracic), ribs, tuber coxae, and tuber ischii are prominent; bone structure of wither, shoulders, and neck slightly noticeable.



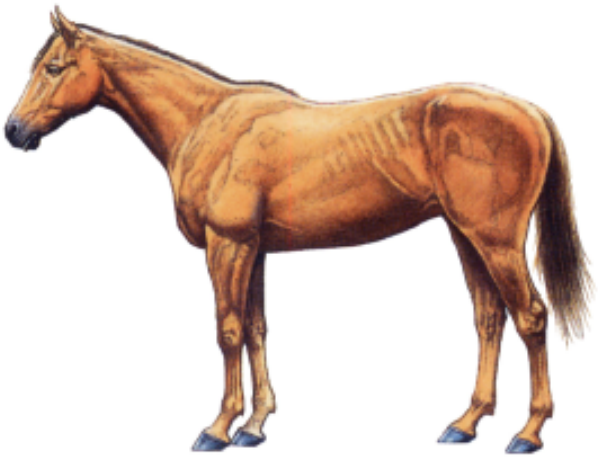
Score 3: Thin

Slight fat cover over ribs; spinous processes and ribs are easily discernable; tailhead prominent, but individual vertebrae cannot be identified visually; tuber coxae appear rounded but easily discernable; tuber ischii is not distinguishable; withers, shoulders and neck accentuated.



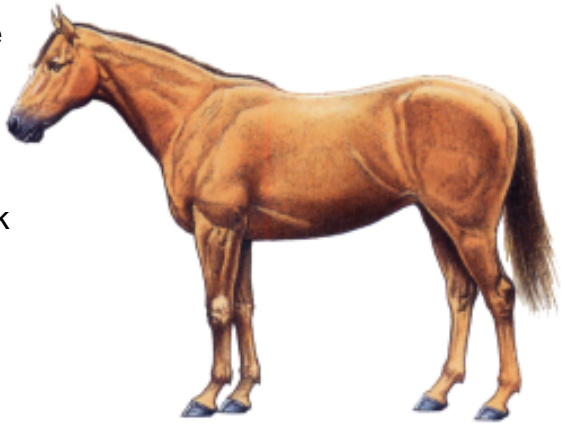
Score 4: Moderately thin

Slight ridge along back that can be felt; faint outline of ribs discernable; fat can be felt around the tailhead; tuber coxae not discernable.



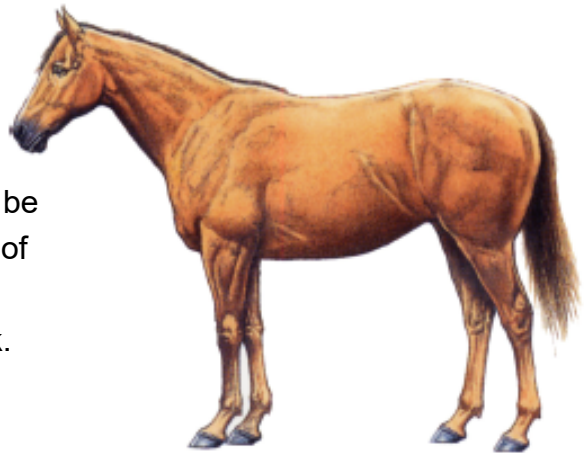
Score 5: Moderate

Back is flat; ribs cannot be visually distinguished, but can be easily felt; fat around tailhead feels spongy; area around the wither appears rounded; shoulders and neck blend smoothly into body.



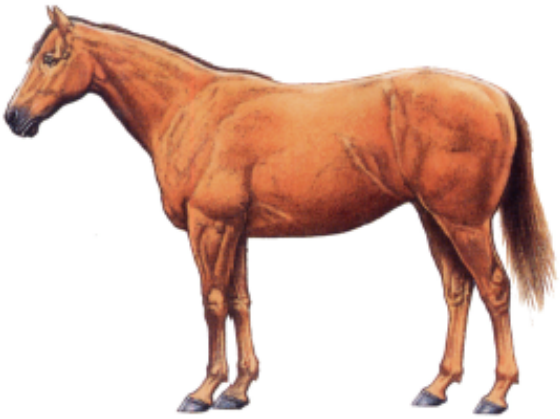
Score 6: Moderately fleshy

May have slight crease down back; fat over ribs feels spongy; fat around tailhead soft; fat begins to be deposited along the sides of the withers, around shoulders, and along neck.



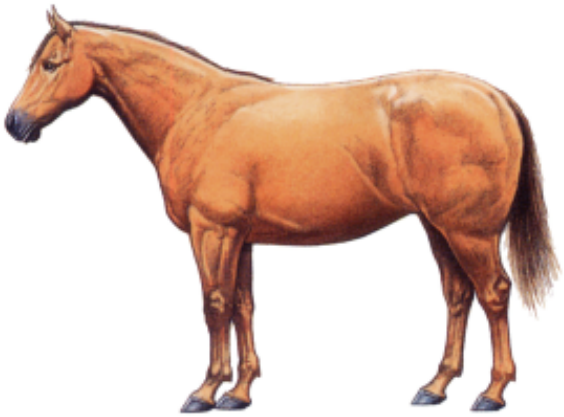
Score 7: Fleshy

Crease down back; individual ribs can be felt, but noticeable filling between ribs with fat; fat around tailhead is soft; fat deposited along withers, behind shoulders, and along neck.



Score 8: Fat

Crease down back; difficult to feel ribs; fat around tailhead is very soft; area along withers filled with fat; area behind shoulder filled with fat and flat; shoulders blend smoothly into body.



Score 9: Extremely fat

Obvious crease down back; fat covering the ribs; bulging fat around tailhead, along withers, behind shoulders, and along neck; flank is filled with fat and flush with rest of the body.

(Source: Japanese Feeding Standards for Light Breed Horses)